

Work Order ID 82791

April-10-12 7:55:09 AM

82791

Page 1

Item ID: D350-636-014

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Skidtube RH

Start Date: 10/04/2012 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 24/04/2012 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: MLJ

Date: 12/04/10 Tooling:

Date:

Run Start *NR1*

QC:

Date: SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
----------	--------------

D2750	F
-------	---

D3492	C
-------	---

100

0.00

100

DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy blue file and type labels per PPP D350-636-014 CHG 006

12-06-25
MLJ 12-6-22

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 82791***82791***

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Stop ***NS2***

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Start Date: 10/04/2012 Start Qty: 1.00

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Required Date: 24/04/2012 Req'd Qty: 1.00

1

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Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

110

0.00

110

Skidtubes

0.00

Skidtubes

Memo

1- Pick D2600-3 Bent ✓

2- Deburr FWD and AFT ends, remove bending marks. Scribe batch# inside
AFT end per dwg D2750 ✓3- Drill pilot holes for blade fitting bolt holes using DT8983. Open to 0.500",
deburr. ✓4- Locate DT8329 off of blade fitting bolt holes and drill pilot holes for blade
fitting ✓

5- Drill only two fwd step holes using DT9616. Ensure proper positioning. ✓

6- Drill pilot holes as per Dwg D2750 sheet 4 (D2750-4 details). Drill using drill,
Jig DT8150 & DT8864A for first side only DT8864B for second side (detail B) ✓7- Clecko DT8864B on second side of tube and drill pilot holes for detail B.
SECOND SIDE ✓8- Open up holes for SECTION AW-AW to 0.375" (2 holes per side) and blade
fitting location holes to 0.500" (total of 4 holes per side) as per dwg D2750.
Open holes for ground handling and detail T to 0.500" (8 holes per side) ✓9- Drill pilot holes for wearplates as per Dwg D2750 using DT8108 open to
0.297". ✓

10- Open up holes of Detail A to 0.297" (total of 2 holes per side) ✓

Ext 12-04-25

W/O:		WORK ORDER CHANGES					
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Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

11-Weld D2744 Cap as per Dwg D2750 and QSI 004. Fill grooves in bend left from bending as per QSI 004

A/R Aluminum Rod batch: M120854 BE 12/04/25

12-Grind welds flush as per Dwg D2750.

120

QC10- Inspect visual per QSI004- ground welds

0.00

120

QC

Memo

0.00

Quality Control

130

QC5- Inspect part completeness to step on W/O

0.00

130

QC

Memo

0.00

Quality Control

W/O:		WORK ORDER CHANGES					
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Item Name: Skidtube RH

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Start Date: 10/04/2012 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 24/04/2012 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals:	Process Plan:	Date:	Tooling:	Date:	Run Start *NR1*
	QC:	Date:	SPC (Y/N):	Date:	Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	Chemical Conversion Coat per QSI005 4.1	0.00							
140									
HandFinish	Memo	0.00							
Hand Finishing									
150	QC3- Inspect Part Finish	0.00							
150									
QC	Memo	0.00							
Quality Control									

7/12/12 12-26

SAD 2-05-01

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Cust Item ID:

Required Date: 24/04/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: Date:

Tooling: Date:

Run Start ***NR1***

QC: Date:

SPC (Y/N): Date:

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

160

0.00

160

Skidtubes

0.00

Skidtubes

Memo

Skidtubes

1-Open up holes section BE-BE 0.500" (4 per side) as per dwg D2750 ✓

2-Open holes section BC-BC 0.3125" (4 per side) ✓

3-Open up holes of Detail AB and ground handling to 0.625" (total of 8 holes per side) as per dwg D2750. ✓

4-Chamfer holes of section BE-BE, BC-BC, AB and ground handling (welding instructions on sheet 11) ✓

5-Deburr and blow out all chips from inside of tube. Prepare tube for welding, remove alodine as required.

6-Bond web D2739 in place as per QSI 015

A/R Sikaflex-291

batch: 121221

exp. date: 2013-01-04

7- Weld spacers D3490-1, D3490-5 and D2743 as per dwg D2750 & QSI004 (welding instructions on sheet 11)

A/R Aluminum Rod

batch: ~~121221~~

M120854

BE 12-05-02

8-Grind welds flush as per Dwg D2750

9-Spot face ground handling holes (total of 4 places per side) as per dwg D2750

10-Deburr holes

gt 12-05-01

gt/cc 12-5-3

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W/O:		WORK ORDER CHANGES					
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Stop *NS2*

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1

Cust Item ID:

Required Date: 24/04/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start *NR1*

QC:

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

170

QC10- Inspect visual per QSI004- ground welds

0.00

170

QC

Memo

0.00

Quality Control

180

QC5- Inspect part completeness to step on W/O

0.00

180

QC

Memo

0.00

Quality Control

190

Pressure Wash per QSI005 4.3

0.00

190

HandFinish

Memo

0.00

Hand Finishing

Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch.

1 x 2P 12/05/07.

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Setup Start

NS1

Revision ID:

Item Name: Skidtube RH

Stop

NS2

Start Date: 10/04/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 24/04/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

200

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

200

Powdercoat

Powder Coating

Memo

START TIME:

OVEN TEMPERATURE:

FINISH TIME:

0.00

2:40
3200F

IX ✓

MA
12/5/07

210

QC3- Inspect Part Finish

0.00

210

QC

Quality Control

Memo

Inspect for foreign object per QSI 024

0.00

IBH & 21.11.08

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Item ID: D350-636-014

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N900040100Setup Start ***NS1***

Revision ID:

Item Name: Skidtube RH

Stop ***NS2***

Start Date: 10/04/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 24/04/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

230

0.00

230

HandFinishing

HandFinish

Memo

0.00

Hand Finishing

1-Install inserts as per dwg D2750

2-assemble o'ring as per dwg D3492 and apply o'ring lube
A/R 55-o'ring lube batch: 116 3483-Assemble tube hardware as per dwg D2750 sikaflex batch: 121221 / 13/01

4-Inspect For Foreign Objects

5-Spray inside of tube with "LPS-3" batch: N/A

6-Install blade fitting D3488-041, wearshoe

SIKA FLEX 241

BATCH: 121221EXP DATE: 13/01

7-assemble o'ring to plug as per dwg D3492 and apply o'ring lube

A/R 55-o'ring lube batch: 116 348 1103488-Coat all exposed fasteners with "LPS Procyon" batch: 1145961 RH 2 (2P) 12/05/08

P10

Dart Aerospace Ltd

W/O: 82791		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D350-636-014 PAR #: Fault Category: skid tube NCR: Yes No DQA: Date: 12/06/28
 Resolution: Disposition: repair QA: N/C Closed: Date: 12/6/29

NCR: 12-1539		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
12.5.8	230	Found during Assembly that D3488-041/042 Doesnt Align with skid tube hole RC tol on D3488-041/042 + Hummer Drill Probes	CP 12 06 04	Drill out 24 KS Aff most same hole on skid to max tol Drill out 24 KS hole to max tol on D3488	12-6-6 12/6/28	12/6/28	CP 12 06 04	S 12/6/03
			CP 12 06 04	touch up Alodine as per ASI005 + Re assembly.	12/6/28		CP 12 06 04	S 12/6/03

NOTE: Date & initial all entries

Work Order ID 82791

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Item ID: D350-636-014

Accept

N9000040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Skidtube RH

Start Date: 10/04/2012 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 24/04/2012 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: Date:

Run Start *NR1*

QC: Date:

Stop *NR2*

Tooling: Date:

SPC (Y/N): Date:

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID Tool # Plan Code Accept Qty Reject Qty Reject Number Insp. Stamp

240

QC5- Inspect part completeness to step on W/O

0.00
0.00
8/12/12

240

QC

Memo

Quality Control

250

Pick Kit

0.00

250

Packaging

Memo

0.00

Packaging

K

80
12-6-22

260

QC4- 100% Inspect kits for completeness

0.00

260

QC

Memo

0.00

Quality Control

/

12/12/12

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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	QC:	Date:	SPC (Y/N):	Date:	Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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270

270

Packaging

Packaging

Packaging

Memo

Package as per PPP D350-636-014

0.00

0.00

R401

Loc 72

1x

SP
12-6-26

280

280

QC

Quality Control

QC21- Final Inspection - Work Order Release

Memo

0.00

0.00

12/6/27

MF
12-06-26

W/O:		WORK ORDER CHANGES					
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Picklist Print

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Work Order ID: 82791

82791

Parent Item: D350-636-014

D350-636-014

Parent Item Name: Skidtube RH

Start Date: 10/04/2012

Required Date: 24/04/2012

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP Rev:H02.09.25Rearranged procedure stepsKJ
 IPP Rev:I05.12.08Rearranged procedure stepsEC
 IPP Rev:J06.03.30Per rev. D EC
 IPP Rev:L 07-07-28 Added SS Wearplates(Rev E) JLM Verified By:EC
 IPP Rev:M 08-09-23 revF as per dwg DD verified by:ec IPP Rev:N
 10.06.22 revise seq110 DD verf:EC IPP Rev:O 10.10.01 as
 per IIN revH DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D2600-3-BENT		Manufactured	No			110	Each	27.0000	1				
D2600-3-BFNT									**	1		12-04-25	
Extrusion Bent													

Location	Loc Qty	Loc Code
LG	27	
66875	7	
73253	1	
75021	1	
75022	1	
75023	1	
81330	4	
82347	12	

D2739

Manufactured No

160 Each

3.0000

1

D2739

350 I Beam

Location	Loc Qty	Loc Code
LG	3	
72155	1	
81508	1	
82122	1	

W/O:		WORK ORDER CHANGES					
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Parent Item: D350-636-014

D350-636-014

Parent Item Name: Skidtube RH

Start Date: 10/04/2012

Required Date: 24/04/2012

Start Qty: 1.00

Required Qty: 1.00

D2743

Manufactured No

160 Each

314.0000 8 8

D2743

Crossbolt Spacer

**

BE 12/05/02
B81965 *8

Location

Loc Qty

Loc Code

LG001

314

67766

4

68251

3

73403

64

74445

1

78603

2

79517

30

D2744

Manufactured No

160 Each

42.0000 1 1

D2744

Cap

**

BE 12/04/05

Location

Loc Qty

Loc Code

LG002

42

62715

1

70881

3

78900

38

D3490-1

Manufactured No

160 Each

104.0000 4 4

D3490-1

Cross Bolt Spacer

**

BE 12/05/02
B83269 *4

Location

Loc Qty

Loc Code

LG

95

81976

95

LG001

9

62450

2

74875

4

77042

3

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Shop Packet Print

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Parent Item: D350-636-014

Parent Item Name: Skidtube RH

82791

D350-636-014

Start Date: 10/04/2012

Required Date: 24/04/2012

Start Qty: 1.00

Required Qty: 1.00

D3490-5

Manufactured No

160

Each

45.0000

4

4

D3490-5

Cross Bolt Spacer

**

JE 12/05/08

Location

Loc Qty

Loc Code

LG

25

78958

25

LG001

20

59230

20

ALS4-1032-225

Purchased

No

230

Each

2,461.000

38

38

ALS4-1032-225

Insert

**

38

JP 12/05/08

Location

Loc Qty

Loc Code

ST281

2438

108696

146

110768

62

118386

55

118966

68

120671

107

121269 ✓

2000

ST282

23

120410

10

120451

13

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Page 4

Work Order ID: 82791

Parent Item: D350-636-014

Parent Item Name: Skidtube RH

82791

D350-636-014

Start Date: 10/04/2012

Required Date: 24/04/2012

Start Qty: 1.00

Required Qty: 1.00

AN3C5A

Purchased

No

230

Each

1,596.000

34

34

AN3C5A

Bolt

**

34

OP

12/05/08

Location	Loc Qty	Loc Code
FP001 121444 ✓	7	
115835	7	
ST350	1589	
116419	28	
117343	13	
117764	7	
117872	2	
119749	23	
120423	516	
1210168	500	
121255	500	

AN3C6A

Purchased

No

230

Each

509.0000

4

4

AN3C6A

BOLT

**

4

OP

12/05/08

Location	Loc Qty	Loc Code
FP001	1	
111982	1	
ST351	508	
111982	2	
116419	23	
116549	2	
116704	12	
117619	10	
117688	1	
117872	5	
118422	13	
119449	21	
120423	19	
120693 ✓	400	

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Page 4

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Page 5

Work Order ID: 82791

Parent Item: D350-636-014

Parent Item Name: Skidtube RH

82791

D350-636-014

Start Date: 10/04/2012

Required Date: 24/04/2012

Start Qty: 1.00

Required Qty: 1.00

AN6C44A

Purchased

No

230

Each

170.0000

4

4

AN6C44A

BOLT

**

4

(29)

12/05/08

Location

Loc Qty

Loc Code

FG

2

103964

2

ST343

168

120143

25

120465

23

121013

20

121167 ✓

100

AN8C35A

Purchased

No

230

Each

104.0000

1

1

AN8C35A

BOLT

**

1

(29)

12/05/08

Location

Loc Qty

Loc Code

FP002

103

115960

1

117834

7

118286 ✓

45

121275

50

ST346

1

114442

0

115188

0

115960

1

AN960C10L

✱

NAS1149C0332 R

✓ Purchased

No

230

Each

0.0000

38

38

*AN960C10I *

washer

121509 ✓

**

38

(29)

12/05/08

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Page 6

Work Order ID: 82791

Parent Item: D350-636-014

Parent Item Name: Skidtube RH

82791

D350-636-014

Start Date: 10/04/2012

Required Date: 24/04/2012

Start Qty: 1.00

Required Qty: 1.00

D2745

Manufactured No

230

Each

48.0000

8

8

D2745

Bushing

**

8

(2P)

12/05/08

Location

Loc Qty

Loc Code

FP

81964✓

46

79518

46

FP001

2

69529

1

76142

1

D3488-042

Manufactured No

230

Each

15.0000

1

1

D3488-042

Blade Fitting Assembly, RH

**

1

(2P)

12/05/08

Location

Loc Qty

Loc Code

FP002

82258✓

15

62003

1

75068

8

77015

6

D3492-1

Manufactured No

230

Each

30.0000

8

8

D3492-1

Plug

**

8

(2P)

12/05/08

Location

Loc Qty

Loc Code

FP002

83098✓

30

69531

8

74444

2

76235

4

77037

16

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Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Page 7

Work Order ID: 82791

Parent Item: D350-636-014

Parent Item Name: Skidtube RH

82791

D350-636-014

Start Date: 10/04/2012

Required Date: 24/04/2012

Start Qty: 1.00

Required Qty: 1.00

D3492-5

Manufactured No

230

Each

72.0000

8

8

D3492-5

Plug

**

8

(28)

12/05/08

Location

Loc Qty

Loc Code

FP

40

78792 ✓

40

FP002

32

77044

32

D3535-25

Manufactured No

230

Each

22.0000

1

1

D3535-25

Wearshoe

**

1

(28)

12/05/08

Location

Loc Qty

Loc Code

FP001

22

62233

1

80331

10

81357

11

D3536-25

Manufactured No

230

Each

22.0000

1

1

D3536-25

Gasket

**

1

(28)

12/05/08

Location

Loc Qty

Loc Code

FP

14

81342

14

FP002

8

78902

8

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Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Page 8

Work Order ID: 82791

Parent Item: D350-636-014

Parent Item Name: Skidtube RH

82791

D350-636-014

Start Date: 10/04/2012

Required Date: 24/04/2012

Start Qty: 1.00

Required Qty: 1.00

D3537-1

Manufactured No

230 Each

75.0000 3 3

D3537-1

Wearpad

**

3

28 12/05/08

Location

Loc Qty

Loc Code

FG

81362✓

10

79833

10

FP002

65

69817

5

80337

11

81361

49

D3631-1

Manufactured No

230 Each

227.0000 8 8

D3631-1

Washer

**

8

78 12/05/08

Location

Loc Qty

Loc Code

FG

83588✓

100

81874

100

ST072

127

68062

2

75548

125

D3672-1

Manufactured No

230 Each

1,022.000 8 8

D3672-1

Phenolic Washer

**

8 8012-6-22

Location

Loc Qty

Loc Code

FP001

34

66821

34

ST060

988

72229

4

76277

484

80369

500

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 9

Work Order ID: 82791

Parent Item: D350-636-014

Parent Item Name: Skidtube RH

82791

D350-636-014

Start Date: 10/04/2012

Required Date: 24/04/2012

Start Qty: 1.00

Required Qty: 1.00

D3791-1 Manufactured No

230 Each

25.0000 1 1

D3791-1

Wearplate

**

(28) 12/05/08.

Location

Loc Qty

Loc Code

FP002

83392 ✓

25

62239

2

78897

7

82168

16

D3793-1 Manufactured No

230 Each

26.0000 1 1

D3793-1

Wearshoe

**

1 (28) 12/05/08.

Location

Loc Qty

Loc Code

FP001

83393 ✓

26

78901

10

82171

16

D3793-3 Manufactured No

230 Each

30.0000 1 1

D3793-3

Wearshoe

**

1 (28) 12/05/08.

Location

Loc Qty

Loc Code

FP001

23

80434

11

82166 ✓

12

FP002

7

78935

7

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 10

Work Order ID: 82791

Parent Item: D350-636-014

Parent Item Name: Skidtube RH

82791

D350-636-014

Start Date: 10/04/2012

Required Date: 24/04/2012

Start Qty: 1.00

Required Qty: 1.00

D3794-1

Manufactured No

230 Each

39.0000 1 1

D3794-1

Gasket

**

1 (2P) 12/05/08

Location

Loc Qty

Loc Code

FP

23

82167 ✓

23

FP002

16

75042

4

80435

12

D3794-3

Manufactured No

230 Each

23.0000 1 1

D3794-3

Gasket

**

1 (2P) 12/05/08

Location

Loc Qty

Loc Code

FP002

23

83396 ✓

2

74530

21

80436

MS21043-6

Purchased No

230 Each

765.0000 4 4

MS21043-6

NUT

**

4 (2P) 12/05/08

Location

Loc Qty

Loc Code

FG

20

103693

20

ST301

745

112314

39

117887

6

118384 ✓

200

120308

500

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 11

Work Order ID: 82791

Parent Item: D350-636-014

Parent Item Name: Skidtube RH

82791

D350-636-014

Start Date: 10/04/2012

Required Date: 24/04/2012

Start Qty: 1.00

Required Qty: 1.00

MS21083C8

Purchased

No

230

Each

105.0000

1

1

MS21083C8

NUT

**

1

2P

12/05/08

Location

Loc Qty

Loc Code

304

50

121185 ✓

50

FP002

1

115884

1

ST303

5

115884

0

118077

1

119309

2

119638

2

ST304

49

120142

7

120731

17

121011

25

NAS1149C0832R

Purchased

No

230

Each

293.0000

1

1

NAS1149C0832R

WASHER

**

1

2P

12/05/08

Location

Loc Qty

Loc Code

ST297

293

114915 ✓

293

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Page 11

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 12

Work Order ID: 82791

Parent Item: D350-636-014

Parent Item Name: Skidtube RH

82791

D350-636-014

Start Date: 10/04/2012

Required Date: 24/04/2012

Start Qty: 1.00

Required Qty: 1.00

NAS1515H3L

Purchased

No

230

Each

190.0000

4

4

*NAS1515H3I *

WASHER

**

4

2P

12/05/08

Location

Loc Qty

Loc Code

FG

40

102472

40

ST277

150

118686

3

119438

1

120360

96

121243 ✓

50

NAS1611-005

Purchased

No

230

Each

204.0000

8

8

NAS1611-005

O-RING

**

8

2P

12/05/08

Location

Loc Qty

Loc Code

FP001

204

106099

31

114220 ✓

105

119438

68

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Page 12

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 13

Work Order ID: 82791

Parent Item: D350-636-014

Parent Item Name: Skidtube RH

82791

D350-636-014

Start Date: 10/04/2012

Required Date: 24/04/2012

Start Qty: 1.00

Required Qty: 1.00

NAS1611-010

Purchased

No

230

Each

259.0000

8

8

**

8

SP

12/05/08

NAS1611-010

O-RING

Location

Loc Qty

Loc Code

FP	121415 ✓	50
	110915	0
	120770	50
FP001		209
	110915	14
	117460	8
	118077	1
	118612	3
	119438	47
	120986	50
	121166	36
	121259	50

AN8C21A

Purchased

No

250

Each

121.0000

2

2

**

SP 12-6-22

AN8C21A

BOLT

Location

Loc Qty

Loc Code

ST343		121
	118758	5
	120094	26
	121067	20
	121167	20
	121275	50

2x

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Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Work Order ID: 82791

82791

Parent Item: D350-636-014

D350-636-014

Parent Item Name: Skidtube RH

Start Date: 10/04/2012

Required Date: 24/04/2012

Start Qty: 1.00

Required Qty: 1.00

D2741

Manufactured No

250

Each

63.0000

1

1

D2741

Blade, 350 Skidtube

**

SP

Location

Loc Qty

Loc Code

ST

-10

ST466

73

71856

1

76984

22

79516

40

IX

D3493-1

Manufactured No

250

Each

46.0000

2

2

D3493-1

Washer

**

BS2023 SP

12-6-22

Location

Loc Qty

Loc Code

ST050

46

70697

2

77573

4

78835

40

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 15

Work Order ID: 82791

Parent Item: D350-636-014

Parent Item Name: Skidtube RH

82791

D350-636-014

Start Date: 10/04/2012

Required Date: 24/04/2012

Start Qty: 1.00

Required Qty: 1.00

MS21083C8

Purchased

No

250

Each

105.0000

2

2

MS21083C8

NUT

**

m/21349 SP

Location

Loc Qty

Loc Code

304

50

121185

50

FP002

1

115884

1

ST303

5

115884

0

118077

1

119309

2

119638

2

ST304

49

120142

7

120731

17

121011

25

NAS1149D0863J

Purchased

No

250

Each

211.0000

2

2

NAS1149D0863J

WASHER

**

SP

12-622

Location

Loc Qty

Loc Code

ST298

211

118078

36

119307

75

120308

100

2x

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Shop Packet Print

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

QTY -041	QTY -042	QTY -043	QTY -044	PART NUMBER	DESCRIPTION
X				D2750-041	350 SKIDTUBE ASSEMBLY, LH
	X			D2750-042	350 SKIDTUBE ASSEMBLY, RH
		X		D2750-043	350 SKIDTUBE ASSEMBLY, LH
			X	D2750-044	350 SKIDTUBE ASSEMBLY, RH
1	1	1	1	D2739	WEB
8	8	8	8	D2743	SPACER
1	1	1	1	D2744	CAP
8	8	8	8	D2745	BUSHING
1				D2750-1	SKIDTUBE WELDMENT, LH
	1			D2750-2	SKIDTUBE WELDMENT, RH
		1		D2750-3	SKIDTUBE WELDMENT, LH
			1	D2750-4	SKIDTUBE WELDMENT, RH
1		1		D3488-041	BLADE FITTING, LH
	1			D3488-042	BLADE FITTING, RH
4	4	4	4	D3490-1	SPACER
4	4			D3490-3	SPACER
		4	4	D3490-5	SPACER
8	8	8	8	D3492-041	PLUG ASSEMBLY
8	8			D3492-043	PLUG ASSEMBLY
		8	8	D3492-045	PLUG ASSEMBLY
1	1	1	1	D3535-25	WEARSHOE
1	1	1	1	D3536-25	GASKET
3	3	3	3	D3537-1	WEARPAD
8	8	8	8	D3631-1	WASHER
1	1	1	1	D3791-1	WEARPLATE
1	1	1	1	D3793-1	WEARSHOE
1	1	1	1	D3793-3	WEARSHOE
1	1	1	1	D3794-1	GASKET
1	1	1	1	D3794-3	GASKET
38	38	38	38	ALS4-1032-225	INSERT (OR ALS7-1032-225, AKS4-1032-225, AELS-1032-225)
34	34	34	34	AN3C5A	BOLT
4	4	4	4	AN3C6A	BOLT
4	4	4	4	AN6C44A	BOLT
1	1	1	1	AN8C35A	BOLT
38	38	38	38	AN960C10L	WASHER
1	1	1	1	AN960C816L	WASHER
4	4	4	4	MS21043-6	NUT
1	1	1	1	MS21083C8	NUT
4	4	4	4	NAS1515H3L	WASHER

GENERAL NOTES:

- MATERIAL: MAKE D2750-1/-2/-3/-4 FROM D2600-3 EXTRUSION (INITIAL LENGTH = 120.0).
- FINISH:
ACID ETCH, ALONDE ASSEMBLY PER DART QSI 005 4.1 PRIOR TO INSTALLING D2739 WEB.
POWDER COAT WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED TO 1.0 ABOVE SKIDTUBE CENTER-LINE PER DART 005 4.4 (OPTIONAL).
- TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- UNITS: INCHES UNLESS OTHERWISE NOTED
- BREAK SHARP EDGES: N/A
- IDENTIFICATION: N/A
- WEIGHT: D2750-041/-042/-043/-044 = 26.5 LBS
- WELD PER DART QSI 004
- INSTALL ALS4-1032-225 INSERTS AFTER FINISH AS INDICATED. DRILL 'F' SIZE HOLES ($\phi 0.297$) FOR WEARSHOE INSERTS
- FINAL CONFIGURATION SHOULD HAVE THE FOLLOWING MINIMUM MECHANICAL PROPERTIES:
MINIMUM YIELD TENSILE STRENGTH = 35 KSI
MINIMUM ULTIMATE TENSILE STRENGTH = 38 KSI
- SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS.
COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY. CLEAN EXCESS OFF
POWDER COATING WITH MEK DEGREASER.
- SPACER AND PLUG INSTALLED SAME AS SECTION AJ-AJ EXCEPT HORIZONTAL
- SPACER AND PLUG INSTALLED SAME AS SECTION AP-AP EXCEPT HORIZONTAL

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NO. 02791 MCT
12/04/10

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6-27-10

F	INCORPORATE DSI 9413; QTY (3) D3537-1 WAS QTY (5) (ZN C8-1); D3791-1/-3 REPLACES D3536-13/-35 (ZN C8-1); D3794-1/-3 REPLACES D3536-13/-35 (ZN B8-1); ADD D3791-1 (ZN C8-1); WEARSHOE HOLES UNDER FWD/AFT SADDLE REMOVED (8 PL). WEARSHOE HARDWARE QTY UPDATED (ZN B8-1); D3488-041/-042 HARDWARE UPDATED (ZN C1-8, 9, 10, 11); ADD NOTE 12 AND 13 (ZN A6-1); REASON: REF. NCR 08-043	PH	08.07.16
E	CHANGE TO STAINLESS STEEL WEARPLATES; ADD RUBBER GASKETS, CHANGE INSERTS; ADD D3631-1; REMOVE QTY (38) NAS1515H3L; REMOVE QTY (10) NAS1515H8L; REMOVE D2741; QTY (2) AN960C816; REMOVE QTY (2) MS21083C8	CB	07.05.17
D	ADD HOLES AND SPACERS FOR APICAL FLOATS; INCORPORATE DEO 9133/9157	PH	06.01.05
C	ADD D2750-3/D2750-4; INCORPORATE D2738 AND D2740	CP	98.11.18
B	CHANGE MS24694-S293 TO AN8-16A	CP	98.09.01
A	NEW ISSUE	DS	98.04.16
REV	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	08.07.16		

DART AEROSPACE USA, INC.

PORT HADLOCK, WA

DRAWING NO.

D2750

REV. F

SHEET 1 OF 11

TITLE

350 SKIDTUBE ASSEMBLY

SCALE

NTS

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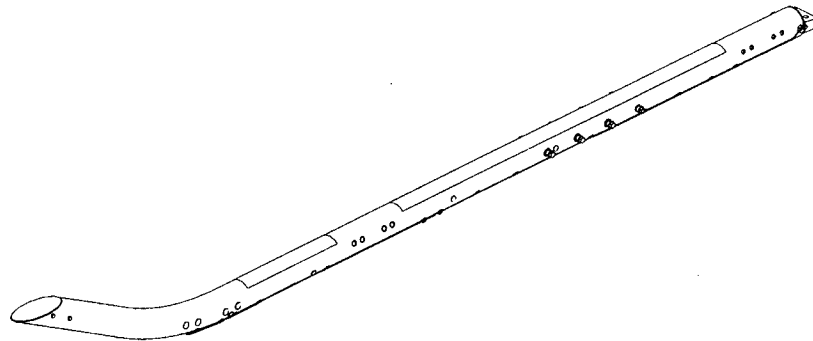
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

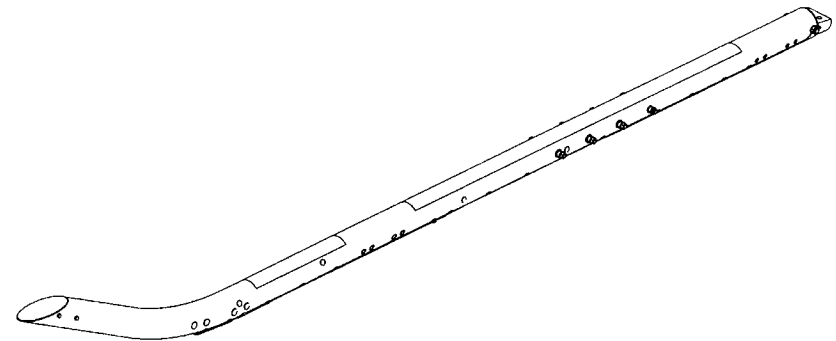
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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D2750-041 350 SKIDTUBE ASSEMBLY, LH



D2750-042 350 SKIDTUBE ASSEMBLY, RH

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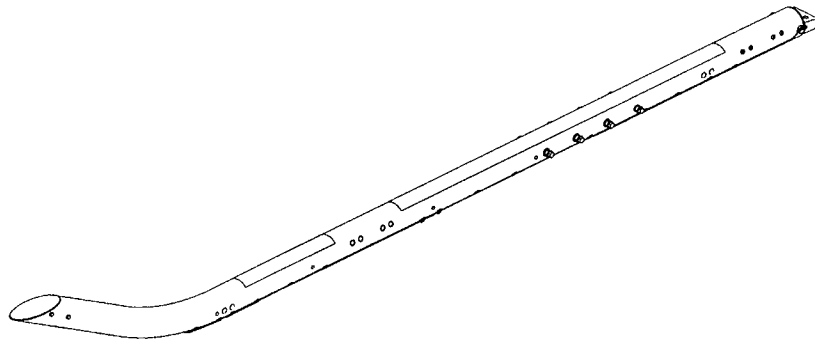
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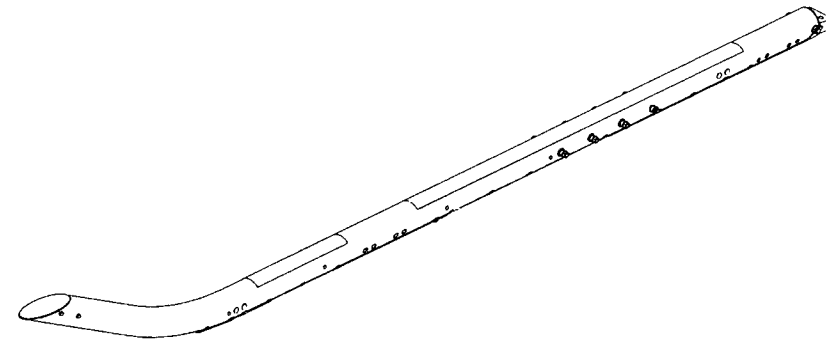
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D2750-043 350 SKIDTUBE ASSEMBLY, LH



D2750-044 350 SKIDTUBE ASSEMBLY, RH

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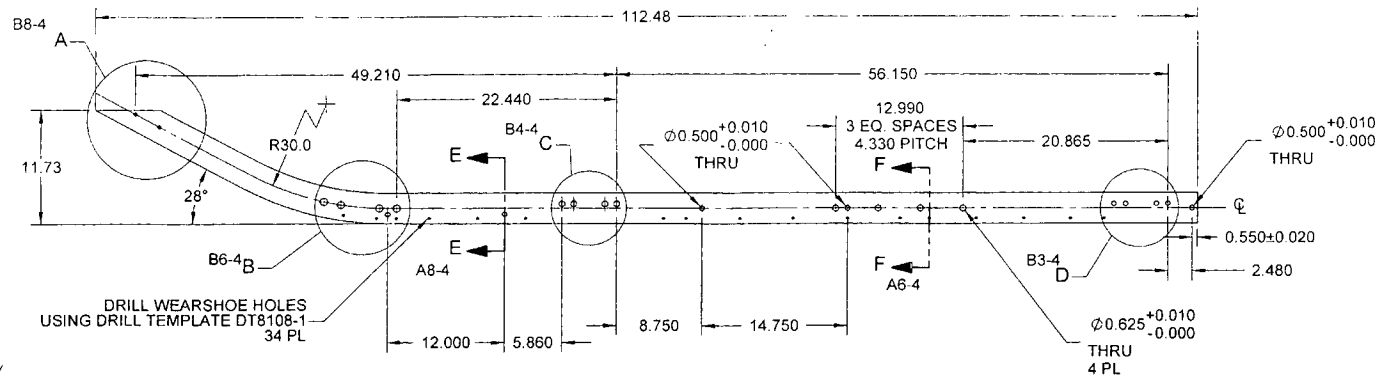
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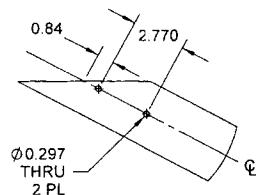
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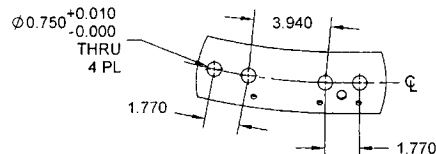
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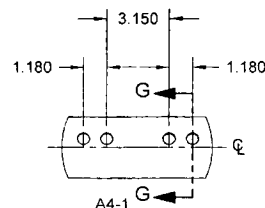
D2750-1 LH SKIDTUBE



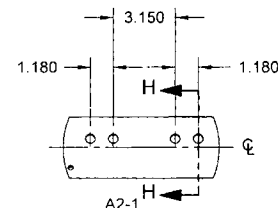
DETAIL A
SCALE 2X



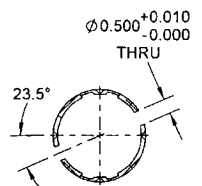
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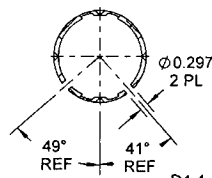
DETAIL C
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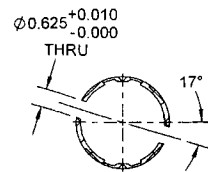
DETAIL D
SCALE 2X



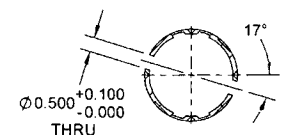
SECTION E-E
SCALE 3X, 2 PL



SECTION F-F
SCALE 3X, 17 PL



SECTION G-G
SCALE 3X, 4 PL



SECTION H-H
SCALE 3X, 4 PL

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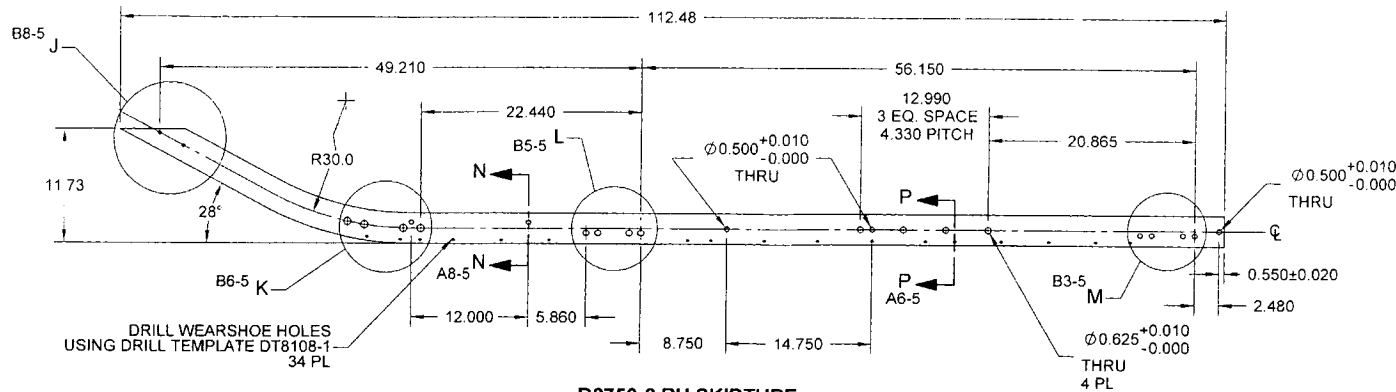
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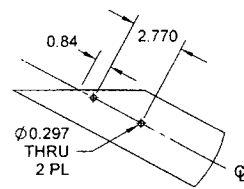
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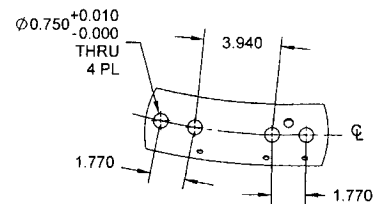
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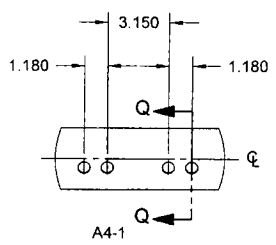
D2750-2 RH SKIDTUBE



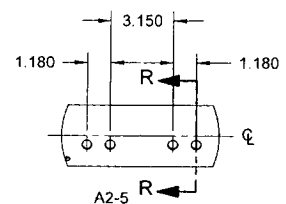
DETAIL J
SCALE 2X
D8-5



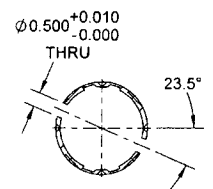
DETAIL K
SCALE 2X
C7-5



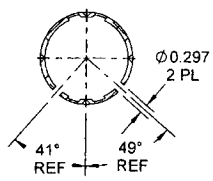
DETAIL L
SCALE 2X
D6-5



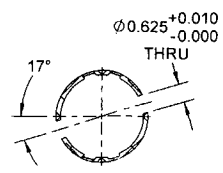
DETAIL M
SCALE 2X
C3-5



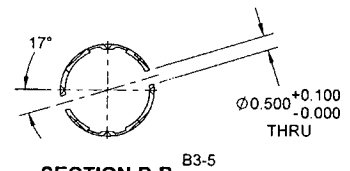
SECTION N-N
SCALE 3X, 2 PL
C6-5



SECTION P-P
SCALE 3X, 17 PL
C4-5



SECTION Q-Q
SCALE 3X, 4 PL
B5-5



SECTION R-R
SCALE 3X, 4 PL
B3-5

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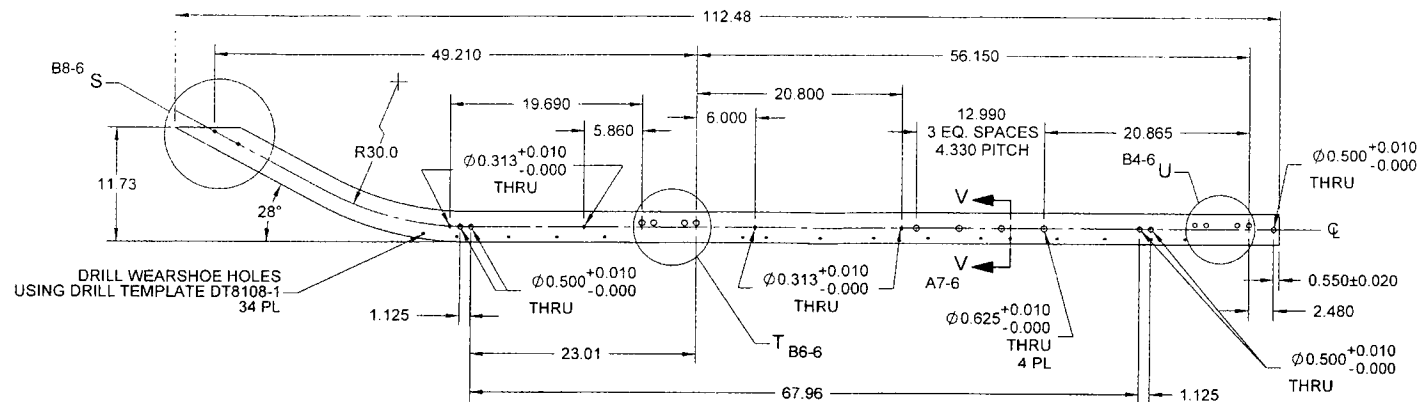
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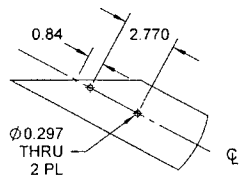
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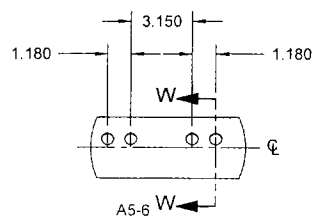
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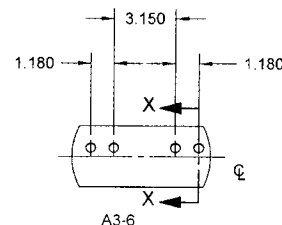
D2750-3 LH SKIDTUBE



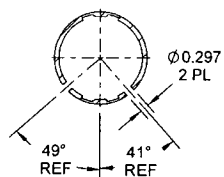
DETAIL S
SCALE 2X



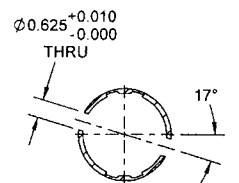
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SCALE 2X



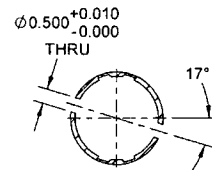
DETAIL U
SCALE 2X



SECTION V-V
SCALE 3X, 17 PL



SECTION W-W
SCALE 3X, 4 PL



SECTION X-X
SCALE 3X, 4 PL

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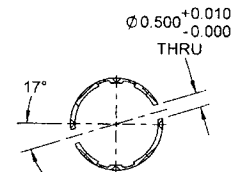
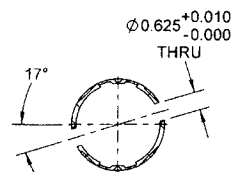
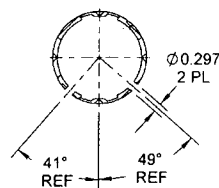
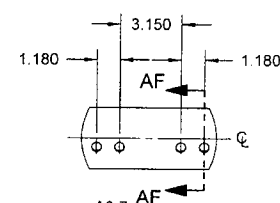
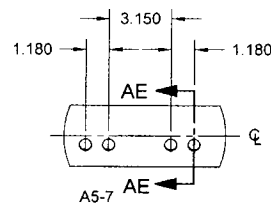
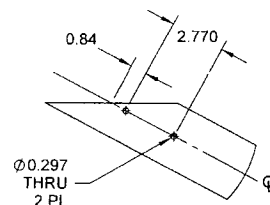
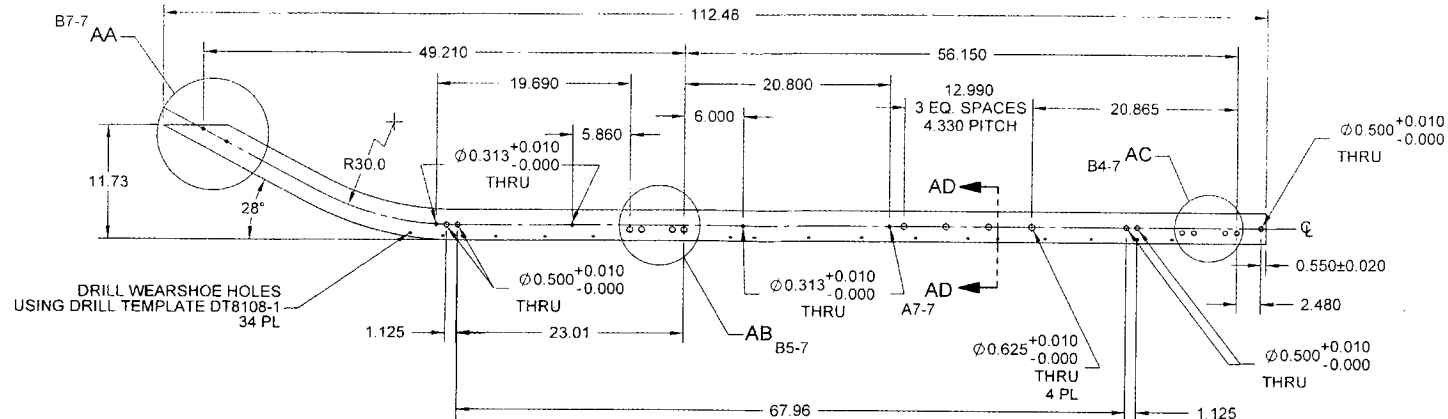
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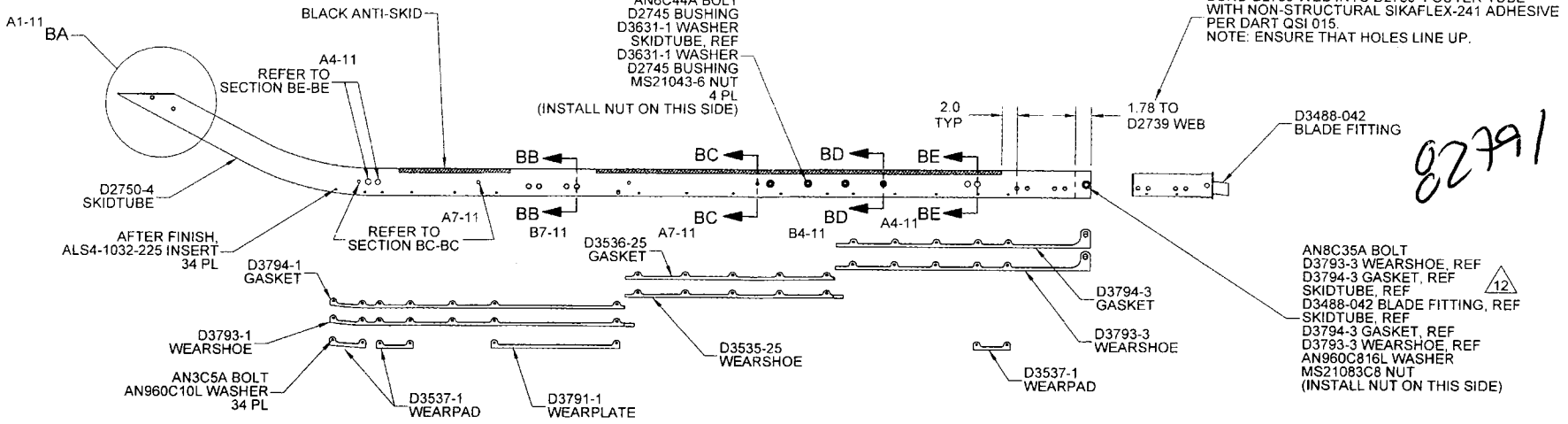
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WORK ORDER NON-CONFORMANCE (NCR)

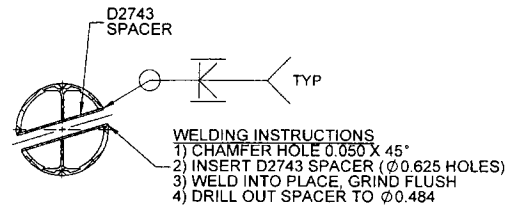
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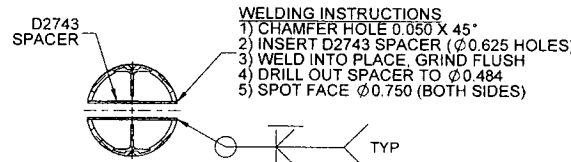
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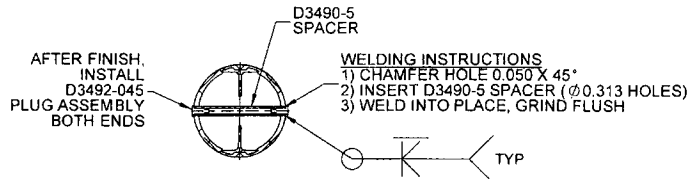
D2750-044 350 SKIDTUBE ASSEMBLY, RH



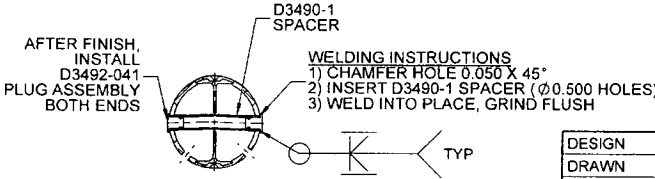
SECTION BB-BB
SCALE 3X, 4 PL



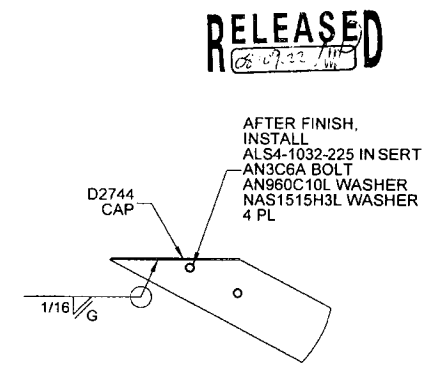
SECTION BD-BD
SCALE 3X, 4 PL
(HARDWARE REMOVED FOR CLARITY)



SECTION BC-BC
SCALE 3X, 4 PL



SECTION BE-BE
SCALE 3X, 4 PL



DETAIL BA
SCALE 2X

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8 7 6 5 4 3 2 1

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NO. 293

AWS D17.1.2001
QUALIFICATION TEST RECORD

Name: Barclay Elliott
Job number: 82796
Part number: A350-636-014
Description: Skid tube
Welding Process: Tig[☒] Mig[]
Base material: Alum
Current: AC[☒] DC[]

TEST REQUIREMENTS AND RESULTS

Visual:

pass[☒] fail[]

Penetration:

pass[☒] fail[]

UNACCEPTABLE

Cracks:

pass[☒] fail[]

Undercut:

pass[☒] fail[]

Pin holes:

pass[☒] fail[]

Overlap (cold lap)

pass[☒] fail[]

Porosity (surface):

pass[☒] fail[]

Coloration:

pass[☒] fail[]

Qualifier David Reed

Date of Test Coupon 12-05-01

Welder Barclay Elliott

Date of Test Coupon 12-05-01

The above named individual is qualified in accordance with AWS D17.1.2001 to weld

